

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**



## RAW SEQUENCE LISTING

DATE: 02/24/2003

PATENT APPLICATION: US/09/762,105A

TIME: 15:27:08

Input Set : A:\Maliga'105CorrectedSeqList2.txt

Output Set : N:\CRF4\02242003\I762105A.raw

3 <110> APPLICANT: Maliga, Pal  
 4 Kuroda, Hiroshi  
 5 Khan, Muhammad Sarwar  
 6 Rutgers, The state University of New Jersey  
 8 <120> TITLE OF INVENTION: Translation Control Elements for High-Level Protein  
 9 Expression in the Plastids of Higher Plants and  
 10 Methods of Use Thereof  
 12 <130> FILE REFERENCE: Rut 00-0010  
 14 <140> CURRENT APPLICATION NUMBER: 09/762,105A  
 15 <141> CURRENT FILING DATE: 2001-04-23  
 17 <150> PRIOR APPLICATION NUMBER: PCT/US99/17806  
 18 <151> PRIOR FILING DATE: 1999-08-03  
 20 <150> PRIOR APPLICATION NUMBER: 60/138,764  
 21 <151> PRIOR FILING DATE: 1999-06-11  
 23 <150> PRIOR APPLICATION NUMBER: 60/095,163  
 24 <151> PRIOR FILING DATE: 1998-08-03  
 26 <150> PRIOR APPLICATION NUMBER: 60/095,167  
 27 <151> PRIOR FILING DATE: 1998-08-03  
 29 <150> PRIOR APPLICATION NUMBER: 60/112,257  
 30 <151> PRIOR FILING DATE: 1998-12-15  
 32 <150> PRIOR APPLICATION NUMBER: 60/131,611  
 33 <151> PRIOR FILING DATE: 1999-04-29  
 35 <160> NUMBER OF SEQ ID NOS: 132  
 37 <170> SOFTWARE: FastSEQ for Windows Version 3.0  
 39 <210> SEQ ID NO: 1  
 40 <211> LENGTH: 227  
 41 <212> TYPE: DNA  
 42 <213> ORGANISM: Artificial Sequence  
 44 <220> FEATURE:  
 45 <223> OTHER INFORMATION: Synthetic sequence  
 47 <400> SEQUENCE: 1  
 48 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggcctcgtag gattgacgtg 60  
 49 agggggcagg gatggctata tttctgggag aattaaccga tcgacgtgca agcggacatt 120  
 50 tattttaaat tcgataattt ttgcataaac atttcgacat atttatttat tttattatta 180  
 51 tgagaatcaa tcctactact tctggttctg gggtttccac ggctagc 227  
 54 <210> SEQ ID NO: 2  
 55 <211> LENGTH: 191  
 56 <212> TYPE: DNA  
 57 <213> ORGANISM: Artificial Sequence  
 59 <220> FEATURE:  
 60 <223> OTHER INFORMATION: Synthetic sequence  
 62 <400> SEQUENCE: 2  
 63 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggcctcgtag gattgacgtg 60

ENTERED

## RAW SEQUENCE LISTING

DATE: 02/24/2003

PATENT APPLICATION: US/09/762,105A

TIME: 15:27:08

Input Set : A:\Maliga'105CorrectedSeqList2.txt

Output Set: N:\CRF4\02242003\I762105A.raw

```

64 aggggggcagg gatggctata tttctgggag aattaaccga tcgacgtgca agcggacatt      120
65 tattttaaat tcgataattt ttgcaaaaac atttcgacat atttatttat tttattatta      180
66 tgagagctag c                                                              191
69 <210> SEQ ID NO: 3
70 <211> LENGTH: 227
71 <212> TYPE: DNA
72 <213> ORGANISM: Artificial Sequence
74 <220> FEATURE:
75 <223> OTHER INFORMATION: Synthetic sequence
77 <400> SEQUENCE: 3
78 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
79 aggggggcagg gatggctata tttctgggag aattaaccga tcgacgtgca agcggacatt      120
80 tattttaaat tcgataattt ttgcaaaaac atttcgacat atttatttat tttattatta      180
81 tgagaataaa ccgacaaca agtggaagtg gggtgtccac ggctagc                    227
84 <210> SEQ ID NO: 4
85 <211> LENGTH: 196
86 <212> TYPE: DNA
87 <213> ORGANISM: Artificial Sequence
89 <220> FEATURE:
90 <223> OTHER INFORMATION: Synthetic sequence
92 <400> SEQUENCE: 4
93 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
94 aggggggcagg gatggctata tttctgggag ttacgtttcc acctcaaagt gaaatatagt      120
95 atttagttct ttctttcatt taatgcctat tgggtgtcca aaagtccctt tccgaagtcc      180
96 tggagaggaa gctagc                                                        196
99 <210> SEQ ID NO: 5
100 <211> LENGTH: 154
101 <212> TYPE: DNA
102 <213> ORGANISM: Artificial Sequence
104 <220> FEATURE:
105 <223> OTHER INFORMATION: Synthetic sequence
107 <400> SEQUENCE: 5
108 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
109 aggggggcagg gatggctata tttctgggag ttacgtttcc acctcaaagt gaaatatagt      120
110 atttagttct ttctttcatt taatgcctgc tagc                                  154
113 <210> SEQ ID NO: 6
114 <211> LENGTH: 195
115 <212> TYPE: DNA
116 <213> ORGANISM: Artificial Sequence
118 <220> FEATURE:
119 <223> OTHER INFORMATION: Synthetic sequence
121 <400> SEQUENCE: 6
122 gagctcgctc cccgcgcgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
123 aggggggcagg gatggctata tttctgggag tcgagtagac ctgtgtgttg tgaaaattct      120
124 taattcatga gttgtaggga gggatttatg tcaccacaaa cagagactaa agcaagtgtt      180
125 ggattcaaag ctagc                                                        195
128 <210> SEQ ID NO: 7
129 <211> LENGTH: 159
130 <212> TYPE: DNA

```

## RAW SEQUENCE LISTING

DATE: 02/24/2003

PATENT APPLICATION: US/09/762,105A

TIME: 15:27:08

Input Set : A:\Maliga'105CorrectedSeqList2.txt

Output Set: N:\CRF4\02242003\I762105A.raw

```

131 <213> ORGANISM: Artificial Sequence
133 <220> FEATURE:
134 <223> OTHER INFORMATION: Synthetic sequence
136 <400> SEQUENCE: 7
137 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
138 aggggggcagg gatggctata tttctgggag tcgagtagac cttgtgtgtg tgaaaaattct      120
139 taattcatga gttgtaggga gggatttatg tcagctagc      159
142 <210> SEQ ID NO: 8
143 <211> LENGTH: 195
144 <212> TYPE: DNA
145 <213> ORGANISM: Artificial Sequence
147 <220> FEATURE:
148 <223> OTHER INFORMATION: Synthetic sequence
150 <400> SEQUENCE: 8
151 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
152 aggggggcagg gatggctata tttctgggag tcgagtagac cttgtgtgtg tgaaaaattct      120
153 taattcatga gttgtaggga gggatttatg aguccucaga cagaaacaaa agccucagta      180
154 ggattcaaag ctagc      195
157 <210> SEQ ID NO: 9
158 <211> LENGTH: 195
159 <212> TYPE: DNA
160 <213> ORGANISM: Artificial Sequence
162 <220> FEATURE:
163 <223> OTHER INFORMATION: Synthetic sequence
165 <400> SEQUENCE: 9
166 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
167 aggggggcagg gatggctata tttctgggag caatgcaata aagttacgta gtgtctattt      120
168 atctttgata taagggtat ttccatgggt ttgccttggt atcgtgttca taccgttgta      180
169 ttgaatgatg ctagc      195
172 <210> SEQ ID NO: 10
173 <211> LENGTH: 153
174 <212> TYPE: DNA
175 <213> ORGANISM: Artificial Sequence
177 <220> FEATURE:
178 <223> OTHER INFORMATION: Synthetic sequence
180 <400> SEQUENCE: 10
181 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
182 aggggggcagg gatggctata tttctgggag caatgcaata aagttacgta gtgtctattt      120
183 atctttgata taagggtat ttccatggct agc      153
186 <210> SEQ ID NO: 11
187 <211> LENGTH: 201
188 <212> TYPE: DNA
189 <213> ORGANISM: Artificial Sequence
191 <220> FEATURE:
192 <223> OTHER INFORMATION: Synthetic sequence
194 <400> SEQUENCE: 11
195 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggcctcgtgg gattgacgtg      60
196 aggggggcagg gatggctata tttctgggaa aaaagccttc cattttctat ttgtatttgt      120
197 agaaaactag tgtgcttggg agtccctgat gattaataa accaagattt taccatgact      180

```

## RAW SEQUENCE LISTING

DATE: 02/24/2003

PATENT APPLICATION: US/09/762,105A

TIME: 15:27:08

Input Set : A:\Maliga'105CorrectedSeqList2.txt

Output Set: N:\CRF4\02242003\I762105A.raw

```

198 gcaatttttag agagagctag c 201
201 <210> SEQ ID NO: 12
202 <211> LENGTH: 183
203 <212> TYPE: DNA
204 <213> ORGANISM: Artificial Sequence
206 <220> FEATURE:
207 <223> OTHER INFORMATION: Synthetic sequence
209 <400> SEQUENCE: 12
210 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
211 aggggggcagg gatggctata tttctgggaa aaaagccttc cattttctat tttagattgt 120
212 agaaaaactag tgtgtctggg agtccctgat gattaaataa accaagattt taccatggct 180
213 agc 183
216 <210> SEQ ID NO: 13
217 <211> LENGTH: 185
218 <212> TYPE: DNA
219 <213> ORGANISM: Artificial Sequence
221 <220> FEATURE:
222 <223> OTHER INFORMATION: Synthetic sequence
224 <400> SEQUENCE: 13
225 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
226 aggggggcagg gatggctata tttctgggag caaaaagcct tccattttct atttgattt 120
227 gtagaaaact agtgtgcttg ggagtccttg atgattaaat aaaccaagat ttaccatgg 180
228 ctacg 185
231 <210> SEQ ID NO: 14
232 <211> LENGTH: 182
233 <212> TYPE: DNA
234 <213> ORGANISM: Artificial Sequence
236 <220> FEATURE:
237 <223> OTHER INFORMATION: Synthetic sequence
239 <400> SEQUENCE: 14
240 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
241 aggggggcagg gatggctata tttctgggag ggagaccaca acggtttccc actagaaata 120
242 attttgttta actttaagaa ggagatatac atatggcaag catgactggt ggacaggcta 180
243 gc 182
246 <210> SEQ ID NO: 15
247 <211> LENGTH: 182
248 <212> TYPE: DNA
249 <213> ORGANISM: Artificial Sequence
251 <220> FEATURE:
252 <223> OTHER INFORMATION: Synthetic sequence
254 <400> SEQUENCE: 15
255 gagctcgctc ccccgccgctc gttcaatgag aatggataag aggctcgtgg gattgacgtg 60
256 aggggggcagg gatggctata tttctgggag ggagaccaca acggtttccc actagaaata 120
257 attttgttta actttaagaa ggagatatac atatggcaat cactagccct gccttggcta 180
258 gc 182
261 <210> SEQ ID NO: 16
262 <211> LENGTH: 161
263 <212> TYPE: DNA
264 <213> ORGANISM: Artificial Sequence

```

## RAW SEQUENCE LISTING

DATE: 02/24/2003

PATENT APPLICATION: US/09/762,105A

TIME: 15:27:08

Input Set : A:\Maliga'105CorrectedSeqList2.txt

Output Set: N:\CRF4\02242003\I762105A.raw

```

266 <220> FEATURE:
267 <223> OTHER INFORMATION: Synthetic sequence
269 <400> SEQUENCE: 16
270 gagctcgctc ccccgccgtc gttcaatgag aatggataag aggctcgtgg gattgacgtg      60
271 agggggcagg gatggctata tttctgggag ggagaccaca acggtttccc actagaaata      120
272 attttgttta actttaagaa ggagatatac atatggctag c                          161
275 <210> SEQ ID NO: 17
276 <211> LENGTH: 1183
277 <212> TYPE: DNA
278 <213> ORGANISM: Artificial Sequence
280 <220> FEATURE:
281 <223> OTHER INFORMATION: Synthetic sequence
283 <400> SEQUENCE: 17
284 gagctcggtta cccaaagctc ccccgccgtc gttcaatgag aatggataag aggctcgtgg      60
285 gattgacgtg agggggcagg gatggctata tttctgggag cgaactccgg gcgaatacga      120
286 agcgcttgga tacagttgta gggagggatc catggctagc attgaacaag atggattgca      180
287 cgcaggttct ccggccgctt ggttgaggag gctattcggc tatgactggg cacaacagac      240
288 aatcggtctgc tctgatgccg ccgtgttccg gctgtcagcg caggggcgcc cggttctttt      300
289 tgtcaagacc gacctgtccg gtgccctgaa tgaactccag gacgaggcag cgcggctatc      360
290 gtggctggcc acgacgggcg ttccttgccg agctgtgctc gacgtgtgca ctgaagcggg      420
291 aagggaactgg ctgctattgg gcgaagtgcc ggggcaggat ctctgtcat ctcaacttgc      480
292 tccctgccgag aaagtatcca tcatggctga tgcaatgcgg cggtgcata cgcttgatcc      540
293 ggctacctgc ccattcgacc accaagcgaa acatcgcatc gagcgagcac gtactcggat      600
294 ggaagccggc cttgtcgatc aggatgatct ggacgaagag catcaggggc tcgcgccagc      660
295 cgaactgttc ccagggtcca aggcgcgcac gccgcagcgc gaggatctcg tcgtgacaca      720
296 tggcgatgcc tgcttgccga atatcatggt ggaaaatggc cgcttttctg gattcatcga      780
297 ctgtggccgg ctgggtgtgg cggaccgcta tcaggacata gcgttggtca cccgtgatat      840
298 tgcgtgaagag cttggcggcg aatgggctga ccgcttctc gtgctttacg gtatcgccgc      900
299 tcccgattcg cagcgcatcg ccttctatcg ccttcttgac gagttcttct gagcgggtct      960
300 agagtagaca ttagcagata aattagcagg aaataaagaa ggataaggag aaagaactca      1020
301 agtaattatc cttcgttctc ttaattgaat tgcaattaaa ctcggcccaa tcttttacta      1080
302 aaaggattga gccgaataca acaaagattc tattgcatat attttgacta agtatatact      1140
303 tacctagata tacaagattt gaaatacaaa atctagcaag ctt                          1183
306 <210> SEQ ID NO: 18
307 <211> LENGTH: 610
308 <212> TYPE: DNA
309 <213> ORGANISM: Artificial Sequence
311 <220> FEATURE:
312 <223> OTHER INFORMATION: Synthetic sequence
314 <400> SEQUENCE: 18
315 ccattggcacc acaaacagag agcccagaa gacgcccggc cgacatccgc cgtgccaccg      60
316 aggcggacat gccggcggtc tgcaccatcg tcaaccacta catcgagaca agcacgggtca      120
317 acttccgtac cgagccgcag gaaccgcagg agtgagcga cgacctcgtc cgtctcgggg      180
318 agcgctatcc ctggctcgtc gccgaggttg acggcgaggt cgcggcatc gcctacgcgg      240
319 gcccttgaa ggcacgcaac gcctacgact ggacggccga gtcgaccgtg tacgtctccc      300
320 cccgcaccaa gcggacggga ctgggctcca cgctctaac ccacctgtgt aagtccttgg      360
321 aggcacaggg cttaagagc gtggtcgtg tcatcgggct gcccaacgac ccgagcgtgc      420
322 gcattgcacga ggcgctcgga tatgcccccc gcggcatgct gcgggcggcc ggcttcaagc      480
323 acgggaactg gcattgacgtg ggtttctggc agctggactt cagcctgcgc gtaccgcccc      540

```

VERIFICATION SUMMARY

DATE: 02/24/2003

PATENT APPLICATION: US/09/762,105A

TIME: 15:27:09

Input Set : A:\Maliga'105CorrectedSeqList2.txt

Output Set: N:\CRF4\02242003\I762105A.raw